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13 April 1962

MEMORANDUM FOR: Chief, Technical Plans & Development Staff

SUBJECT: Staff Study, "Panoramic Stereo Viewer"

1. Problem

To provide NPIC with an instrument for efficient viewing of stereo images in roll form from existing camera systems or any other system now under development regardless of scale, format, orientation or obliquity.

2. Assumptions

a. Stereo images from future systems are expected to be conventional, convergent, and panoramic or any combination of these.

b. Scales are expected to vary between 1:500,000 and 1:20,000.

c. Resolution is expected to approach 200 lines per mm in future systems.

d. Some roll film viewing will always be necessary and desirable.

3. Discussion

a. NPIC now has no satisfactory instrument either in-house or under development which is capable of accommodating all of the variables in stereoscopically viewing the inputs from existing systems or from future systems.

b. The AF, as part of its developmental program for exploitation of photographic images, proposes to have [redacted] build a stereoscopic viewer based on the Schmidt system of viewing an aerial image instead of a real image. 25X1A

25X1A c. The [redacted] proposal for the panoramic stereo viewer contemplates a refined microscopic viewing system. This is a parallel and complementary approach to the problem.

d. It is anticipated that one or the other of these approaches will eventually be adopted by NPIC for future instrumentation to back up rear projection scanning viewers. It is entirely possible that both

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systems are desirable.

e. Extensive modifications to the [redacted] Tri-Power viewer are now contemplated in an attempt to fill the NPIC immediate need for such an instrument. Modification of the Tri-Power viewer alone cannot be expected to fully accommodate all of the variables involved. 25X1A

25X1A f. The [redacted] proposal for the panoramic stereo viewer states that its objective is to provide a viewing instrument capable of accommodating all of the variables involved to provide the operator with the proper information for stereo viewing and to provide the operator with easy access to each of the required adjustments. The proposed instrument may be used with normal vertical, oblique, panoramic, or transformed panoramic stereo photography of similar or different photo scales. It is believed that these objectives can be resolved within the practicable limits imposed by both optical and mechanical considerations.

4. Conclusions

It is desirable to standardize instrumentation in future operations; however, the best features of all approaches cannot be incorporated into one optical instrument at this time.

a. The best immediate solution appears to be the development of promising parallel and complementary instruments through the prototype stage for operational testing.

b. Since the AF is exploring the aerial image viewer and expects a prototype late this year, NPIC should pursue the parallel approach in the microscope system.

25X1A c. [redacted] is the vendor best equipped to design and build a viewer utilizing the microscopic optical approach to the problem. In addition, this company has furnished the majority of the satisfactory optical instruments now used by NPIC.

5. Recommendation

That NPIC negotiate a contract with [redacted] to produce a prototype panoramic stereo viewer for [redacted] according to their proposal. 25X1A 25X1A 25X1A

[redacted]

25X1A NPIC/TP&DS/TDB: [redacted]

Stereo Viewing of Roll Film

Chief, TP&DS, NPIC SIO, Army 12 Apr 62

[redacted] 25X1A

1. Problem

Equipment currently available for viewing stereo images in roll form is inadequate for present and programed inputs particularly for films with over-all widths greater than 70mm.

2. Assumptions

Army has a definite need for an efficient roll film stereo viewing instrument which will accommodate the wide variety of roll film inputs expected during the next few years.

3. Discussion

25X1A a. The [redacted] Tri-Power Scanning Stereoscope was not originally designed to accommodate the wide range of film widths and types of photography currently programed. Although the Army is having five Tri-Power Scanning Stereoscopes modified, this is an interim measure to provide Army with a limited capability within three months for viewing stereo images from roll film of various types.

b. The prototype model of the [redacted] Large Light Table has many deficiencies and, it will take several months to have the prototype modified to [redacted]rtially satisfy present needs. 25X1A

25X1A c. The [redacted] proposal for the Panoramic Stereo Viewer includes many good features which apparently were the result of experience gained in 25X1A producing the prototype of the [redacted] Large Light Table.

4. Conclusion

25X1A The [redacted] Panoramic Stereo Viewer will be of considerable value to Army, particularly in support of departmental requirements. It also is believed 25X1A that a good roll film stereo viewing instrument would be of considerable value during the OAK and MCI as a back up instrument to be used by the photo interpreter to quickly study in stereo those unidentifiable items observed on the non stereo 25X1A [redacted] viewing screen. The [redacted] Panoramic Stereo Viewer does have several limitations, the most important being the small field of view at higher magnifications (5½ inches divided by the magnification). This seriously restricts the use of the instrument in scanning large areas. However, this instrument appears to be the best available at the present time.

SUBJECT: Stereo Viewing of Roll Film

5. Recommendation

25X1A That NPIC accept the [redacted] proposal for the production of a prototype Panoramic Stereo Viewer.

[redacted] 25X1A